



Version With Markings to Show Changes Made to Specification

Bold, Underlined Text indicates inserted text

Bracketed text indicates deleted text

In the Specification:

The paragraph beginning on Page 68, line 14:

Figure 26 shows a non limiting example of target signaling molecule inactivation of a zinzyme sensor molecule. In the absence of the target (SEQ ID NO. [31]**34**), the zinzyme sensor molecule (SEQ ID NO. [32]**35**) catalyzes the cleavage of a reporter molecule (SEQ ID NO. [33]**36**).

The paragraph beginning on Page 68, line 18:

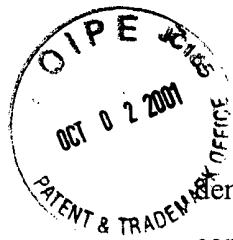
Figure 27 shows a non-limiting example of target signaling molecule activation of a zinzyme sensor molecule. In the presence of the target (SEQ ID NO. [34]37), the zinzyme sensor molecule (SEQ ID NO. [35]38) catalyzes the cleavage of a reporter molecule (SEQ ID NO. [36]39).

The paragraph beginning on Page 68, line 12:

Figure 28 shows a non-limiting example of a nucleic acid sensor molecule that is modulated by a protein target signaling molecule, Erk. In the presence of the target protein (Erk), the nucleic acid sensor molecule (SEQ ID NO. [39]**41**) catalyzes the cleavage of a reporter molecule.

The paragraph on Page 68, line 26:

Figure 29 shows a non-limiting example of a “half-zinzyme” nucleic acid sensor molecule that is modulated by the 5’-UTR of the Hepatitis C virus (HCV 5’-UTR). The figure shows both inactive and active forms of the zinzyme sensor molecule (SEQ ID NO. [42]**43**). In the presence of the target signaling oligonucleotide (SEQ ID NO. [43]**26**) which represents the stem loop IIIB of the HCV 5’-UTR, the zinzyme sensor



demonstrates an activity increase of three logs in cleaving the reporter molecule component of the sensor molecule as shown in the graph (+ oligo target) as compared to the sensor molecule in the absence of the target. In the presence of the full length 350 nt. HCV 5'-UTR, the zinzyme sensor molecule demonstrates an almost one log increase in activity in cleaving the reporter molecule component of the sensor molecule.

The paragraph beginning on Page 94, line 27:

Figure 26 shows a non-limiting example of target signaling molecule inactivation of a zinzyme sensor molecule. In the absence of the target (SEQ ID NO. [31]34), the zinzyme sensor molecule (SEQ ID NO. [32]35) catalyzes the cleavage of a reporter molecule (SEQ ID NO. [33]36). Reaction conditions: 140mM KCl, 10mM NaCl, 20 mM HEPES pH 7.4, 1mM MgCl₂, 1mM CaCl₂, 400 nM Nucleic acid sensor, 400 nM Target, Trace of labeled reporter (~10 nM), 25μl reaction volume, Nucleic acid sensor, target and reporter were heated at 75°C for 3 min, cooled to 37°C and cleavage initiated by the addition of MgCl₂ and CaCl₂.

The paragraph beginning on Page 95, line 6:

Figure 27 shows a non-limiting example of target signaling molecule activation of a zinzyme sensor molecule. In the presence of the target (SEQ ID NO. [34]37), the zinzyme sensor molecule (SEQ ID NO. [35]38) catalyzes the cleavage of a reporter molecule (SEQ ID NO. [36]39). Reaction conditions: 140mM KCl, 10mM NaCl, 20 mM HEPES pH 7.4, 1mM MgCl₂, 1mM CaCl₂, 400 nM Nucleic acid sensor, 400 nM Target, Trace of labeled reporter (~10 nM), 25μl reaction volume, Nucleic acid sensor, target and reporter were heated at 75°C for 3 min, cooled to 37°C and cleavage initiated by the addition of MgCl₂ and CaCl₂.

The paragraph beginning on Page 96, line 12:

An RNA sensor domain that binds to protein ERK2 (Erk) was appended to a variant of the hammerhead enzymatic nucleic acid molecule through a communication module developed through rational design. The salient feature of this design strategy is that substrate-binding elements in the enzymatic nucleic acid molecule domain are

FOOTNOTES: 100201

